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Conference Abstract

Shining a Light on the Specimen Room: Enhancing Global Research on Bird Eggs through Standardized Digital Archives

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Abstract

Bird egg collections in natural history museums are valuable resources for studies such as how birds' eggs may evolve under different environmental conditions, providing information that is critical in our changing world and of great interest to scientists. However, the millions of bird egg specimens, many collected over 100 years ago, are often not prioritized in digitized archives. To assess the current status of digitized egg specimens, we examined data available on open-source platforms such as iDigBio, based on the Marini et al. (2020) review of egg collections. Millions of bird egg specimens are preserved in museums worldwide, but only about 21% have been digitally cataloged and made accessible on global platforms, mostly from Western countries. While the technology used for extracting features from digital objects has greatly advanced for studying the size, color and spottiness of eggs (e.g., SpotEgg), the digitized specimens may not be formatted to meet the needs for research, thereby limiting their application. For example, among eight museums with digitized collections, images from six include a scale, but only the Yale Peabody Museum also incorporates a color chart with standardized gray patches for calibration (e.g., Calibrite Color Checker). Furthermore, coordinates obtained through georeferencing are essential for studying environmental influences on egg traits. Yet, fewer than half of the specimens (49%) have been georeferenced. Here we demonstrate how properly digitized specimens—using a

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dark background, adding a scale, and incorporating a standard color chart in the photo —can be utilized to study the evolution of egg color in birds. We urge the adoption of a standard digitization protocol for bird egg collections, the enhancement of georeferencing for the specimens, and the integration of local databases into global platforms to increase accessibility for the scientific community. These procedures should also be implemented at the early stage of the digitization process to maximize the value of digitized specimens.

Keywords

natural history collection, museums, egg color, iDigBio, global egg database

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Conflicts of interest

The authors have declared that no competing interests exist.

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